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Electricity on the Farm

November 1928

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Electricity on the Farm

Vol. 1 NOVEMBER 1928 No. 17

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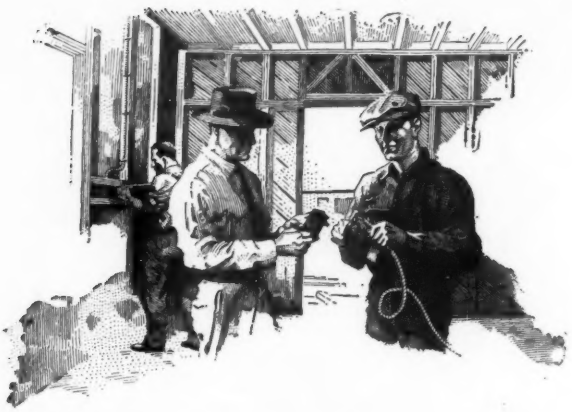

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GENERAL ELECTRIC

Electricity on the Farm

Vol. 1 NOVEMBER 1928 No. 17

Winter Egg Production Experiences of some poultrymen would indicate that lengthening of the day by use of artificial illumination morning and evening increases egg production, irrespective of the time of the year. Other observers, particularly in the western coast section of the country, are of the opinion that lengthening of the day during the summer months has little or no effect on increasing egg production, but during the winter and early spring seasons when the day is normally short, the use of artificial lighting morning and evening does result in a marked increase in the number of eggs produced.

It is significant, however, that there is universal agreement on the latter point, for such increase takes place when the price of eggs is at its highest. The use of electric lights in giving the hens a longer day during that period of the year when the sun rises late and sets early is a paying practice. The amount of current actually consumed is negligible compared with the additional revenue produced through its use. And, apparently, the hens thrive under this artificial condition. Longer hours of light give the hen greater opportunity for exercise and for feeding, so that, as a whole, the hen's life is made more regular throughout the entire year than in the case where daylight alone is employed.

With modern electrical developments in the line of time switches, the lights are automatically turned on at the same hour each morning and automatically dimmed and switched at the same hour each evening. Thus a greater regularity is secured than where manual operation of the lighting switches is necessary. Poultry raising with the aid of electricity for lighting the hen houses, heating the drinking water, grinding poultry feed, and for doing other tasks, is very much simplified, and represents a much less irksome job than under the old method where everything was done by hand, and where the old kerosene lantern had to be depended upon for providing light for work after dark.

A Farm Hen House Where Winter Eggs Are Produced at a Profit

A Twelve Hour Day For The Hen

By E. R. MEACHAM

"WHEN you go into a new business," a very clever man said to me the other day, "there is a great advantage in not knowing anything about it. Then you have to study it from the ground up with an open mind."

That is what my neighbor, Ed Brown did about winter eggs.

He had never paid much attention to chickens. There was always a flock of them about the place, of course, but his wife and daughter used to putter around with them for pin money. He took no hand in the job unless they wanted him to knock together a little chicken coop or take the eggs to town.

Then he dropped in to a poultry program during Farmer's Week at the Agricultural College. They were talking about winter eggs from the ordinary farm flock through artificial lighting, and Brown suddenly suspected that he might be missing one effective measure for farm relief.

So, being a thorough going chap, he started a little private investigation of his own. All the rest of the winter he studied bulletins, read poultry papers, and learned about management methods from New Jersey to Petaluma. He learned just how the most successful egg producers housed and fed their flocks. He knew when they turned electric lights on the pullets, and when they stopped using them on the hens.

Essentials

"You have to go a long way back to light a flock effectively," he told me one day. "It's a lot like making the stone broth my grandmother used to tell us about. First you dropped a clean stone into boiling water; then you seasoned it with a pound of chuck steak, an onion, and half a dozen carrots. Turning on the lights is hardly more than dropping the stone in the soup. Besides doing that, you must have a flock of healthy hens bred for production; you have to bring them up as carefully as a baby, and you have to build them a house that's warm and dry before they'll even think of laying "in the winter."

So when spring came he laid the foundation for a new flock

with a thousand white leghorn chicks from a hatchery that boasted a splendid strain of healthy, well bred stock. By this time his wife and daughter were quite as enthusiastic as he was, and they gladly carried out the new ideas he had been gaining on poultry management.

Sold off Roosters

When the chickens were half grown, Brown sold off the roosters for fries. That brought him enough to pay for the chickens, and to feed them until the pullets became self supporting, he told me.

When he could snatch the time during the summer and early fall, he worked on the hen house. It had been a very ordinary building, about 20 x 40 with a row of windows across the south and a few rickety roosts at one end.

He lined the walls and ceilings with heavy insulating board. Then he plastered directly over that. He put in new roosts and dropping boards that kept the floor clean. He even installed metal nests.

The neighbors were frankly skeptical.

"It's a good house all right," one man said shaking his head. "It's as warm and good as I've ever seen, but you'll never make the hens pay for it."

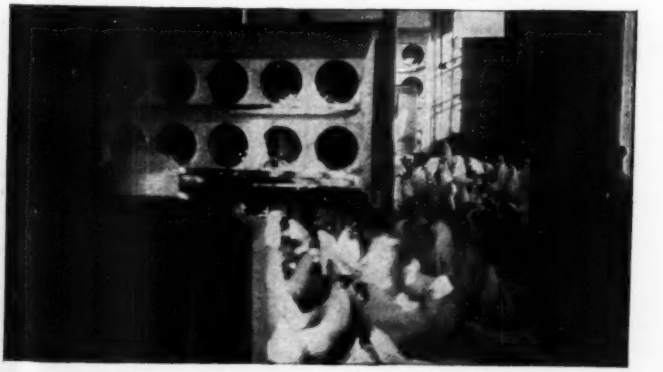
"That's just where I hope you're wrong," said Brown cheerfully. "They are going to lay eggs all winter, if I know anything about it. And eggs bring around sixty cents in town."

In our northern latitudes one hundred good hens ordinarily lay only ten to twenty eggs a day during the winter months. For the hen was originally a tropical bird, adapted to warm climates and long days. She cannot eat enough during the short winter days to last through the long nights. Her crop, which is the hopper supplying her gizzard with grist, ought to be kept full enough so the gizzard grinds away most of the time.

Helps Hens Eat More

But on most farms where the hens must be fed before dark, and are not fed again until late the next morning, the gap is so long that the crop becomes empty and the hen must use up her own store of fat merely to keep warm. Most of the food she eats must go to the maintenance of her own body; there is little left for the manufacture of eggs.

Artificial lights let her see to eat longer, and so shorten her period of fasting. She is quite willing to get up early or stay up later by lamp light, and she will eat and drink and scratch around just as briskly as though the sun were shining.



This Farm Flock Pays Well for a Little Extra Light

Giving the hen a twelve hour day and the extra feed and water she will consume boosts the egg yield to fifty or sixty eggs a day for each one hundred birds during these months when prices are high. It does not materially affect the annual yield, but it does increase the annual income.

Followed Standards

Brown planned his lighting according to the standards set up by the New York College of Agriculture in Cornell Extension Bulletin No. 90. Four 40-watt lights shaded by green conical reflectors hung in a line half way between the edge of the dropping boards and the front of the house. The inner surface of the shades was painted with aluminum bronze to reflect the light. They hung six feet from the floor.

"What have you so many lights for?" one of his friends asked him curiously. "It looks like those hens could see to eat if you threw grain in to them without a regular white-way."

"Down at Cornell University," said Brown, "they have worked out just exactly how much light a hen needs to eat by. If you give her less, she may not come down from her perch, or she may hide in some shadowy corner on the floor and sleep. If you give her more, she won't eat any faster, nor any more, so you are only wasting current. So I just put them up like they said. One 40-watt light for every 200 square feet of floor space."

When to Start

"When are you going to begin using the lights?" I asked him.

"I'm not sure," he replied. "Most people begin early in November, but that chicken man down at the University told me that I couldn't light a flock by the calendar. Hens should have a chance to recover their body weight after their molt, and if early hatched, well matured pullets are keeping up a 40-60% production, they ought not to be lighted until that production begins to drop.

"If the lights are used too early, he says, you may throw the flock into a false molt. And on the other hand, you can hurry late hatched pullets into maturity with lights. I guess you just got to use your own judgment."

Other farmers do.

Gordon Hengstler, of Ablemans, Wisconsin, usually turns his lights on early in November. He lights his chicks from 5:30 a. m. until daylight; then from 6:45 to 8:00 at night. His record for last year shows what good poultry management plus artificial lights can do.

Good Production

He had a flock of three hundred Barred Rocks, one hundred yearlings and two hundred pullets hatched the first week in April. During October they laid 573 eggs. Along about the twelfth of November, he turned the lights on. That month they laid 684 eggs. By December, making the days longer with electric lights began to tell; there were 3,567 eggs; in January, 4,671, and in February, 4,535. Over 1,000 dozen eggs in three months during the dead of winter!

That sort of record is the spur that pricks the sides of Brown's ambition.

The night before he turned the lights on for the first time, I stayed at his house.

"Do you want to get up early and see how the lights come on?" He asked.

I certainly did, so our alarm clock got us up a little before the one in the hen house turned the lights on for the hens.

We hurried downstairs and stood just outside the windows of the hen house, shivering in the cold fall air. Promptly at five o'clock a glare of light streamed from the windows

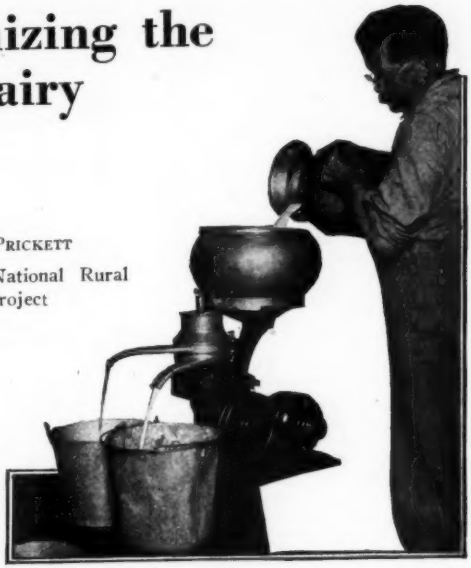
We pressed closer.

The chickens blinked a little, and clucked in mild surprise. Then one enterprising pullet jumped down and began to scratch in the straw. Then another and another. Soon the whole flock was off the perches and eating busily.

The twelve hour day had begun.

Modernizing the Dairy

By LEE C. PRICKETT
Acting Director, National Rural Electric Project



A Motor Driven Separator Saves a Lot of Monotonous Work. One kw. hr. Will Separate a Ton of Milk.

THE electric motor is very economical to operate and is the most reliable and satisfactory source of power that has been devised. The big opportunities which it offers for labor saving can more readily be appreciated when it is remembered that a big husky man cannot exert more than 1/10 h.p. for a 10-hour day. Furthermore, since a motor is tireless it not infrequently operates for 24 hours per day on such jobs as refrigeration and barn ventilation. The motor is also easily adapted to automatic drive on various dairy operations such as milk bottling. Perhaps its most important use in the dairy is for driving the milking machine.

Milking Machines

The average energy consumption of the pipe line type of machine is less than 30 kw. hrs. per month for 10 cows, and even lower on some of the more recen models. Although pipe line machines are preferred by many, portable machines are just as reliable and have an energy consumption only one-half as large; in fact, the requirements of some of the latest portables are less than one-quarter of the average for pipe line types. The use of current does not vary to any appreciable extent with the milk production. Among other things, this means that it will take practically no longer to do the milking by machine during the busy season, when the milk flow is generally high, whereas with hand milking these chores of spring and early summer are always heavy. The hired labor saved on a general dairy farm during this rush season may pay for a machine in from one to two seasons.

When the operating cost is compared to the labor saved the importance of such equipment becomes even more pronounced. The total time required for one

man to milk a small herd of 10 to 20 cows and wash and care for the equipment with a double unit or two single units is only about one-half that required by hand. The mechanical milker washers recently put on the market materially shorten the total milking time for machine methods and make it thoroughly practical to consistently produce milk of certified grade. The average man can handle three single units, or their equivalent, at full capacity, and some can even keep two double units operating efficiently.

Saves Hired Help

This of course assumes that the operator "strips" the cows, as it is seldom advisable to leave the teat cups on long enough to make hand-stripping unnecessary. When operating two double units a man will hardly have time to carry the milk to the dairy room. In larger herds it has been found possible to do with one less full time man where the herd contained from 50 to 100 cows. With the "Release" system of milking, which is so popular in New Zealand, the milk flows through sanitary piping from the cows directly to the milk room and, according to owners of such installations, it takes only one-third as long as milking by hand, while ordinary milking machines reduce the milking time by one-half. Such equipment deserves much greater popularity than it has so far achieved.

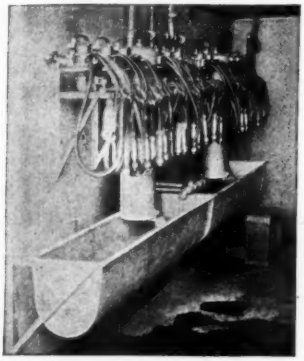
In the past one of the main objections of many farmers to the milking machine has been the difficulty and labor of keeping it clean. The mechanical washers mentioned above apparently have solved this problem in a very practical way. Quite a large number are already in use, some of them on farms producing certified milk.

Refrigeration

The increasing demand for better milk and cream and the premium sometimes paid for the raw product with a bacteria count below certain arbitrary standards —generally 10,000 per cubic centimeter for the highest grade—has had a lot to do with the increasing demand for electric refrigeration. Milk should be cooled as soon as possible after milking to less than 50°F. and stored preferably at 40°F. Electricity is very economical for this purpose. In fact, an ice house generally costs as much as a complete electric cooling outfit, and the labor of putting up ice even when it is free for the harvesting costs fully as much as electricity for this purpose. Ordinarily 50 pounds of ice must be put away for each 10-gallon can of milk that is to be cooled and stored the following summer. On the other hand, the energy consumption for cooling

Drinking Cups in a Minnesota Dairy Barn. Warm Water as Compared to Water in Outdoor Tanks Resulted in an Increase in the Yearly Production of Milk of 15 per cent, in This Latitude.

and storing milk with an electric refrigerator should not be above .8 kw. hrs. per 10-gallon can cooled, or 60 kw. hrs. per month per 100 quarts cooled daily. Looking at it in another way, 3 kw. hrs. will replace 100 pounds of ice. Most dairymen find that they cannot even afford to get the ice from the ice house during the busy summer, even if the ice house had been filled free of charge by some philanthropist.



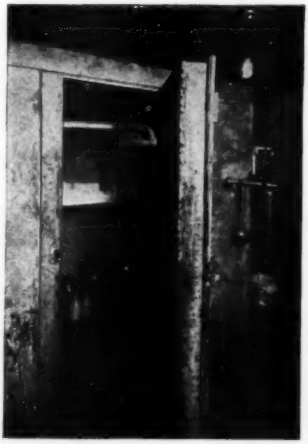
This One for "Universal" Milkers Is Located on the Wern Farms at Waukesha, Wisc.

In some cases water at a temperature around 50°F. is available for milk cooling. The energy consumption for circulating the water should not be above 2.5 to 3.5 kw. hrs. per month for each 10 cows in milk. Where a tubular cooler has two sets of cooling pipes, the upper tier should always be cooled by water, even though the water temperature is not low, as it will materially reduce the amount of heat which must be removed by the brine in the lower pipes. This will reduce operating costs of the refrigerating equipment.

Other Uses

The motor driven cream separator is, of course, an outstanding labor saver. Further, as compared to hand operation, it will often pay for itself in additional cream receipts within a year, where any considerable amount of milk is separated, due largely to the constant speed of a motor driven machine. The average energy consumption is only about .5 kw. hr. per 100 pounds separated, or say 2 to 2.5 kw. hrs. per month for each 10 cows where all the milk is separated.

With some rearranging in the barn, feed grinding can be made semi-automatic so that it can be done at chore time and with less than 5 h.p., even 1 h.p. in some cases. Besides saving labor and trips to and from the mill, the feed is fresh, which is of considerable importance, especially in the South. The average energy consumption usually is not over 15 kw. hrs. per ton of feed ground, or from 15 to 20 kw. hrs. per month for concentrates for each 10 cows, the latter figure varying widely with milk production. Recent investigations seem to indicate that rather coarse



This Electric Refrigeration Installation on the E. E. Price Dairy Farm at Montgomery, Ala., Is a Great Labor Saver. As Ice Was Previously Purchased, the Saving Paid for the Installation in a Surprisingly Short time.

Hot Water Is Very Essential in the Dairy and Electricity Furnishes It Very Conveniently. Here There Being No Running Water in the Building, the Farmer Fills the 10-gallon Tank with a Large Funnel.

grinding of roughage is the most satisfactory from the standpoint of net profit, the energy consumption ordinarily running from 4 to 7 kw. hrs. per ton ground.

All ordinary silos can be filled very satisfactorily with a 5 H. P. motor and with an energy consumption of less than 1 kw. hr. per ton ensiled.

Electricity is also being used quite extensively for the heating of water for the dairy and is proving to be surprisingly economical. In a typical case in the Middle West a farmer used an average of 52 kw. hrs. per month per 10 cows, this energy furnishing 120 gallons of very hot water.

Sterilizers

Dairy equipment sterilizers are becoming very popular on the Pacific Coast and undoubtedly will be used to some extent in other sections. The energy consumption is around 3.5 or 4 kw. hrs. per day per 10 cows. Where bottles are washed the energy consumption should not be above .5 kw. hr. per 1000 bottles.

There are many other uses for electricity on the dairy farm such as operating the liquid manure pump—an established institution in some sections of the Pacific Northwest, the animal groomer and clipper, barn ventilation—both summer

(*Continued on page 26*)

An Electric Truck Will Cut Delivery Costs. Mr. Martin Hoppert of Sheboygan, Wisconsin, Would Not Use Any Other Type. The Truck uses an Average of .879 kw. hrs. per Mile of Travel, and the Total Cost per Mile Including Interest, Depreciations, etc., is Between 3 and 4 Cents

Four Years of Electrified Farming

By CHARLES F. STUART*

THIS is the second and concluding installment of the article by Mr. Stuart, reviewing the results of the Red Wing Rural Electrification project. Of particular interest are the conclusions drawn. The Red Wing experimental line has shown conclusively that electricity has a very definite place in farming, and can be used with profit to the farmer.

Chas. F. Stuart

There are two items of expense in connection with the use of electricity on the farm. One is the bill the farmer pays the power company for current consumed. The other is the overhead charge made up of interest and depreciation on the farmer's investment in equipment with which to use electricity. Oddly enough the bill for current consumed is the much smaller of the two.

Current Used

During 1927 the five Red Wing farmers included in this report used an average of 243 K.W.H. per farm per month, for which they paid an average bill of $14.77 per farm per month. This expense has been included in the cost table, but the overhead charge on investment in equipment was not included because in this case it must be a theoretical expense due to the fact that most of the equipment on the Red Wing farms was either loaned or donated.

Professor Stuart, however, in another table in his report sets up a full list of this equipment all figured at the retail price the farmer would have had to pay had he acquired it in the regular way. At retail prices the total investment for the five farms would have been $16,667. Interest and depreciation are figured by the University at 12½% which would call for an additional charge in 1927 of $2,083. If this sum was added to the operating expenses for 1927 and subtracted from the net income it would still leave an increase of more than 50% in the net for 1927 over 1924.

Equipment Used

While discussing equipment it is interesting to note all that the list includes. There are many things which perhaps should not properly be charged to the cost of electricity. In several instances it includes furnaces, the reason being that the electric range displaced the old wood or coal stove which was relied upon to heat the kitchen. It includes plumbing and bathroom for each of the five farms, because the bathroom was made possible by a motor on the well. It includes not only motors for operation of farm implements such as feed grinders and ensilage cutters but the implements themselves. It can well be said that when this full list of equipment is allowed as part of the cost of electric energy it embraces not only strictly electrical equipment but many things that more properly should be charged to a higher standard of farm living, in fact, in this case a standard much higher than the

* Chairman, Rural Electric Service Committee, National Electric Light Association; and Assistant to Vice President, and General Manager, Northern States Power Co., Minneapolis, Minn.

Farm of A. C. Bryan on the Red Wing Line

average city resident maintains for the Red Wing farm homes.

The table of figures presented below has been subjected to most careful analysis by University authorities and others interested. The results are so remarkable that we all hesitate to claim that electricity alone is entirely responsible for this steady and material improvement in the financial condition of every one of these five farms. We have looked for other contributing factors. Investigation has been made to determine whether 1927 was a better crop year than 1924, but there is nothing in the records to indicate this. We have sought to determine whether the price of labor was lower but in truth it was a few per cent higher. We have given consideration to the thought that the presence of agricultural college men on these farms at frequent intervals has been partly responsible and there may be some truth in this and there also may be some truth in the suggestion that the fact that these farmers found it necessary to keep records made better business men of them.

The farmers have asked whether electricity will prove just an added expense to the already overburdened farmer. The answer made by this financial statement is an emphatic "no." On the contrary, the report is strongly indicative that electricity liberally and intelligently employed constitutes a sound and profitable venture for the farmer.

It never will be possible to show dollar for dollar how this increase was attained, but every member of the farm family has been released from wasteful time consuming tasks. Pumping and carrying water for household purposes alone, so investigations indicate, requires thirty 8 hour days during the year. The motor on the well and plumbing in the house eliminates this entirely and releases somebody for a full month of more profitable employment. Turning the cream separator by hand twenty minutes night and morning, 365 days in the year, means another thirty—8 hour days. The little motor now performs the job while the housewife is peeling the potatoes.

RED WING EXPERIMENTAL LINE
SUMMARY OF REVENUES, EXPENSES AND INCOME
FOR 5 FARMS

	1924	1925	1926	1927
1. Gross Revenues	$17,366.41	$20,052.99	$20,400.48	$24,821.12
2. Percent Increase	.....	15.4%	17.5%	42.9%
3. Less Operating Expenses...	$9,644.64	$9,555.50	$8,737.21	$9,746.18
4. Increase or decrease 1924..	.....	—0.2%	—9.4%	+1.0%
5. Net Operating Revenues from Operation of Farms.....	$7,721.77	$10,497.49	$11,663.27	$15,074.94
6. Less Adjustments for Stock Purchases, Deferred Bills, Changes in Inventories..	$845.07	$700.64	$1,228.19	$2,628.32
7. Net Incomes	$6,876.70	$9,796.85	$10,630.70	$12,446.62
8. Increase over 1924.....	.....	42.5%	54.6%	81.0%

Records show that one farmer increased his dairy herd 60% without any increase in labor costs. The chickens lay more eggs and at a time when the price is highest.

Mr. Nelson Keeps Careful Cost Records at His Farm on the Red Wing Line.

New born baby pigs are preserved for future pork chops by a little electric heater in the hog house which warms and dries them at the time of birth. The poultry products on these five farms increased 88% during these four years and the dairy products 96%. There is plenty in the actual records to indicate that electricity directly was responsible at least for most of this welcome improvement in the financial condition of these five farms.

Now what does this mean to the American farm?

1. Electricity has paid for its own keep as represented by money paid the power company for energy consumed.

2. It has paid ample overhead charges on all strictly electrical equipment.

3. It has paid ample overhead charges on much equipment more properly chargeable to a higher standard of living.

4. Over and above all this, it has made these five Red Wing electrical pioneers a liberal profit.

If all this be true, then in a nutshell it might be said that intelligent employment of electricity on the American farm promises more for the relief of agriculture than any legislation that has been proposed; that it means a higher standard of living for every member of the farm family; that it means longer lives for the wife and mother; that it means a more cheerful home; that it means keeping the boys and girls on the farm.

Certainly it promises the building of a better civilization.

Electricity Takes the Drudgery Out of Wash Day

Latest Model

By MARION W. LIPPINCOTT

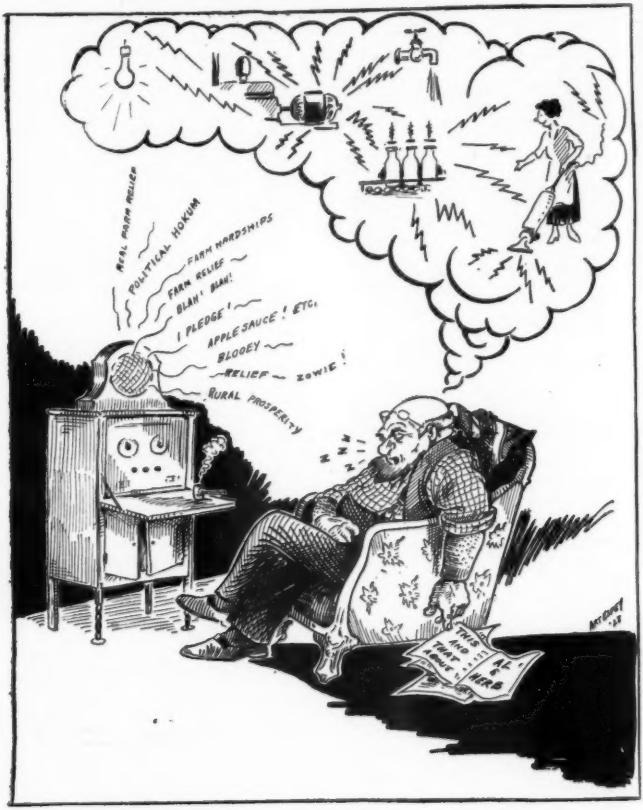
The stories and the pictures all,
That sneak into the magazines,
Make out the farmer's wife is odd,—
A different human soul it seems.

She's always in the wash tube huge,
With children flocked about like flies;
She wears her hair upon her head
A knot that pulls her eyes.

The butter churn and dough for bread
Are always in the picture, too.
It mentions that she's got to plow
And then the milking yet to do.

Since electricity reached the farm
We laugh how wrong these artists are!
A visit to our farms, they'd find
We're not at home; we're in the car.

Visions of Real Farm Relief



A Puzzle

Not many years ago an eastern tanner established a tanyard in a town in one of the southwestern states and was anxious to fix up a suitable sign for his premises. Finally a happy thought struck him.

He bored a hole through the doorpost and stuck a calf's tail into it with the tufted end outside.

After a while he saw a solemn-faced man standing near the door looking at the sign. The tanner watched him a minute and then stepped out and addressed him.

"Good morning, sir," he said.

"Good morning," said the other, without taking his eyes off the sign.

"Do you want to buy leather?" asked the tanner.

"No."

"Perhaps you've got some hides to sell?"

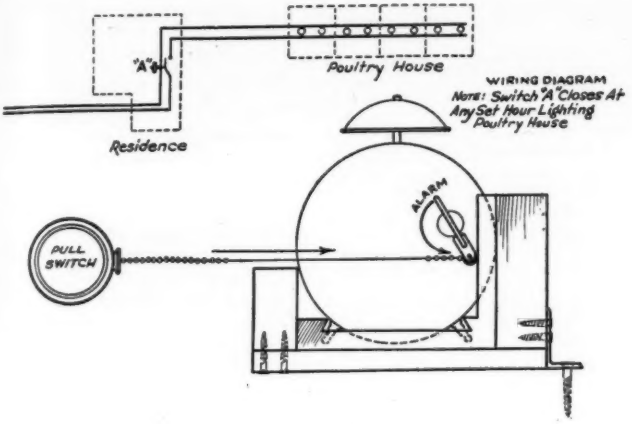
"No."

"Are you a farmer?"

"No."

"What are you then?"

"I am a philosopher. I've been standing here for nearly an hour trying to find out how that calf got through that hole."



Setting the Alarm Clock for the Hens

HENS like men are creatures of habit. No system of lighting and feeding will persuade a flock to lay winter eggs unless it is carried on with absolute regularity. Anything that disturbs the hen's routine will upset her egg production.

So a clock that will turn the lights on at a certain definite time is unquestionably better than turning them on by hand. A man may be late with his chores, his wife may be detained by a caller,—any one of a dozen things may put the hens out of mind. What is fifteen or thirty minutes? Not so very much, but erratic hours will not establish in the hens the steady normal production that you are counting on to swell your poultry profits.

There are several automatic time switches on the market. Some of them are quite simple; some of them turn the lights on, dim them and turn them off again with only a weekly winding.

Many farmers who encourage their hens unofficially, as it were, rig up automatic controls from ordinary alarm clocks.

You can easily arrange them to wake the hungry hens before you want to crawl out of bed on cold winter mornings. The morning light is simpler to control than any other. You only have to set the clock to turn the lights on day after day at the same hour. They stay on until daylight comes in through the windows. There is no need of turning them off at any definite time,—no need that involves the habits of the hens, that is. You can turn the lights off by hand any time after daylight.

Operates a Pull Switch

The first diagram shows a clock operating a pull switch at "A," somewhere in the house. The detailed drawing shows how the switch is connected to the key of an alarm clock. The rigid handle of the alarm must turn when the alarm goes off. As the key moves, it pulls the chain that closes the switch. and the lights come on. The block set up around the

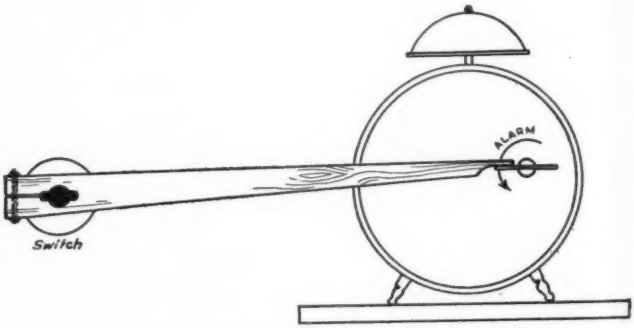
clock to hold it in place, stops the key.

Sometime during the day, it must be given a partial turn back to its original position so that it will turn the lights on again next day.

Lengthening Evening Light

But not everyone wants to use the morning hours to lengthen the hen's working day. For the evening light, or an hour's lunch sometime after sunset, two clocks can be arranged to turn the lights on and off at the proper times.

The second diagram shows a very simple way of connecting



This Clock Operates a Turn Switch

these clocks to the electric wiring.

A strip of wood a foot or so long is clamped to the button of a turn button switch so that it lies parallel to the wall. One end rests lightly on the winding key of the alarm clock. This keeps it horizontal. When the alarm rings, the key turns, and the end of the stick drops off. As it swings down, it snaps the switch. There are no strings and no chains to pull. Its operation is simple and unfailing.

There is very little extra wiring necessary for these time switches, and any ingenious farmer can connect it up to his own automatic control and insure regularity to the feeding period with no more attention than the daily winding of a clock.

Don't Store Electric Fan During Winter

With the advent of the winter season electric fans disappear from homes, and are laid in storage to hibernate until the first breath of the following summer arrives. Those who know, however, claim that the process of storing electric fans during the winter months is a waste of the investment placed in them.

The reason for their claim is that there are at least a dozen uses for electric fans during the winter months, the most prominent of which is the distribution of heat throughout a room by means of air currents.

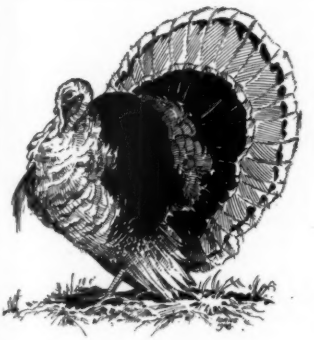
On particularly cold days with stoves or radiators glowing with heat, it is often found that the room itself is cold. Placing an electric fan near the source of heat in such a manner that the breeze does not strike persons in the room, will distribute the heat and warm the entire room.

Other winter uses for electric

(*Continued on page 27*)

Electrical Housekeeping

Conducted by GAIL MEREDITH



Getting Dinner the Day Before

"All human history attests that happiness for man—the hungry sinner—
Since Eve ate apples, much depends on dinner."

—Byron

PERHAPS that is why the Pilgrim Fathers made that first Thanksgiving Day a day of feasting. They knew they would be more grateful as well as happier on a full stomach.

But I like to go to church on Thanksgiving Day as well as gather my family about me, so I have had to learn to simplify my holiday dinners,—and to get them largely the day before.

Last year I had dinner for twelve on the table at one o'clock, and that with church out at twelve just four miles away.

I managed it this way.

Early Wednesday morning I began the soup. The soup bone, flavored with a couple of onions and a half dozen carrots, simmered away while I cleaned and stuffed the turkey. Then I made three pumpkin pies with the pumpkin I had stewed up the day before. By this time—I am not a very fast worker,—the soup was ready to come off. I set it out doors to cool so I could skim off the fat. Then I heated it up again, strained it, and set it back on the fire to be seasoned and thickened all ready to serve.

Then I began on the salad.

Imperial salad is a lemon jello—tart with a little lemon juice, filled with chopped cabbage, celery, cubes of apple and pineapple,—and a little canned pimento or candied cherry and green pepper to give it color.

I poured the salad into a couple of shallow pyrex cake pans ready to cut into squares and set it away in the refrigerator to harden. Then I washed up a couple of heads of lettuce, separated the leaves and shut them up in a tight aluminum dish to keep crisp and cool in the refrigerator until needed.

To the person who begins to sniff haughtily and murmur behind her hand,—

"There's something wrong here. I'll bet she dreamed that dinner. Refrigerator in November, indeed!"

I wish to confess at once that since I bought my electric refrigerator, it goes all year round. I just can't persuade myself to give up the convenience it offers, even when I could carry food out into the summer kitchen and keep it by freezing or store it in a chilly pantry instead.

But I must get back to the menu tacked up over my work table or dinner will be late. I had checked off all the things I could do down to the salad dressing, so that came next, and then since the meal was

so well in hand, I added candied orange peel for good measure.

It is not much of a job.

You cut the peelings from several oranges into narrow strips. Then put it on in cold water; heat to boiling, and cook gently until very tender. Boil one cup of sugar and one-half cup of water until the syrup spins a thread, put in the peel and cook gently until the syrup is evaporated and the peel looks clear. Drain and roll in sugar.

On Thanksgiving morning I set the table for dinner right after breakfast. Then I peeled the potatoes and set them away in cold water. At nine o'clock I set the regulator on my electric oven to 450° and put the turkey in. Then I got out the jelly and pickles, cut up butter for the bread and butter plates, cut the bread and set it back in the bread box, and even put the pie on the dessert plates.

At nine-thirty I had turned the regulator back to 350°, and covered the turkey up to bake slowly. At ten-thirty when we left for church, I took one last admiring look at him and shut up the oven with an easy heart because I knew it would keep on baking at just that same rate until I came back again.

Our guests came piling in with us after church. I had the potatoes and the soaked corn on before they had their things off. That gave me time to set out the salads, make the coffee, and get the extras on the table while my mother-in-law made the gravy, and the soup was getting hot.

If we could only wash the dishes the day before too, we could plan to make holidays really holidays for us as well as the men, couldn't we?

Soup	
Crackers	Pickles
Turkey	Cranberry sauce
Mashed potatoes	Creamed corn
Jelly bread	
Imperial salad	
Pumpkin pie	
Candied orange peel	
Nuts	Coffee

Pop Corn

I DROPPED in at Ann Barton's for a little visit last Sunday afternoon. As soon as she opened the door, I sniffed the smell of good fresh pop corn.

"My, that smells good," I said involuntarily. "Doesn't it?" agreed Ann. "The children are having a great time. Their grandmother sent them an electric corn popper yesterday, and they have popped corn for all the neighbors, eaten a peck or two, and scattered quarts of it around the house. Come on in. Bob will be tickled

to pieces to pop some more for you. We'll go out and watch him."

Have you ever seen an electric corn popper?

It does not look much like those wire affairs we used to shake over a bed of coals in the cook stove. This was a round metal dish, dark blue, and about eight inches across and six inches high, I should judge. It is perched upon legs to keep it off the table. The cover has a row of holes around the outside, and a movable crank you can twist around. There is a small heating element in the bottom, so you can plug the popper in at any convenience outlet and pop the corn anywhere the cord will reach.

The three children gave me

wide buttery smiles and all started in at once to pop another batch.

"The directions tell you not to put any grease in the popper," said Ann. "Ordinarily I believe in following directions for any new piece of equipment implicitly, but I came in this afternoon and found that Bob had worked out a new scheme of his own, and I have to admit that the results justify him."

"What's your method, Bob?" I asked.

"First, I put in a little butter and Crisco," said Bob importantly. "Then I put the corn all over the bottom of the popper and salt it well, see? Then I turn the current on. In just a minute, I hear it popping here and there, and when it really gets to going, I stir it by twisting this crank on the cover. That takes the place of shaking, you know. It pops clear to the top, and when you take it out, its all nice and salty and greasy. Boy, is it ever good!"

Everybody thinks so. That is why I am asking the Bartons to bring the popper with them when they come over for Thanksgiving, and then late in the afternoon when part of the family comes in from a ride, and part of them from play, when we women have the dishes all done up and Thanksgiving has definitely moved out of the kitchen, we can plug in that popper at our house.

Everlasting Dough

AS long as we go on eating three times a day, keeping house is going to be an every day job. But every now and then some enterprising person comes along and shows us a new way of doing up a week's work at a time. I do not mean Sunday's baked meats for Thursday's hash either. Just now I am thinking about hot rolls for supper.

It was half a dozen years ago by the calendar that I learned how to make Everlasting Dough at Farmer's Week at the University of Wisconsin. Of course, it was not any more everlasting than a permanent wave is permanent, but after I made up the batch on Saturday, and stored it away in a cool place, I had enough to provide hot rolls whenever I liked all through the coming week.

The recipe went like this:

1 quart of milk, scalded and cooled.
1 cup melted lard.
1 cup mashed potatoes.
1 cake compressed yeast softened in a cup of water.
1 cup sugar.
2 teaspoonfuls baking powder.
1 teaspoon soda.
2 teaspoons salt.
Flour to make a soft sponge.

After the mixture rose enough to be full of gas bubbles, I added

flour until I had a stiff dough. Then I kneaded it well, and set it away for twenty-four hours.

There were just two things to be careful about. The dough had to be kept in a cool place, and it had to be kneaded down every day.

Now that mechanical refrigeration is providing a storage space with constant cold the whole year round, a new form of this everlasting dough, called Ice Box Rolls, has put in an appearance. This recipe came from a cooking school. It makes about sixty rolls.

1 cup milk scalded.
1 cup potato water.
1 medium sized potato mashed.
2 tablespoons sugar.
1 tablespoon salt.
2 eggs.
4 tablespoons shortening.
2 cakes yeast, compressed.

(*Continued on page 27*)

INDEXED

A Portable Farm Elevator

By R. R. PARKS,
Columbia, Mo.

THE first cost of farm elevators in many cases is prohibitive to their use on many progressive farms. This first cost can be reduced in a simple farm shop by ordering a few special parts.

The portable farm elevator shown in the accompanying illustration while designed to elevate sacked grain and bales can be made to elevate loose grains by fastening buckets to the cross slats and building sides to the bed.

It is truly a portable elevator. When in operation one cultivator wheel acts as a drive wheel, being belted through the barn door from the motor, engine, or line shaft inside. When ready to transport, both wheels are used; the pins are loosened in the drive sprockets, and it is ready to go.

On every farm the problem of elevating is different depending on the system of storage and feeding used. An elevator in every barn and crib would save labor, but the cost of such an outlay would be prohibitive for most farms. A portable elevator, if built to last, will be a back saver as well as a time saver.

Elevator in Use on the G. Hudson Farm, Columbia, Missouri

Oakes Electric Equipment

Hatch Bigger Better Chicks

OAKES QUALITY POULTRY SUPPLIES

Raise More Chicks Easier

The Electric Hen hatches every good egg. Safe and economical to operate. Made in 50, 100, and 165 egg sizes. Low in price, inexpensive to operate—and oh, so simple!

HATCHING and raising chicks electrically is sure, simple, easy. Poultry and farm magazines recommend it. You will like it!

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Every man or woman who raises poultry for profit should be interested in the complete line of Oakes quality poultry supplies—incubators, brooders, fountains, feeders, electric egg testers, etc. Write today for complete illustrated catalog No. 77, containing valuable poultry information—free!

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Only $58.00

Here is the little direct connected gear driven suction plant which has been brought out to meet the demands for a low priced, high class water system. There is no belt to slip and thus lower the efficiency of the system. It is a neat, compact little unit; has a delivering capacity of about 300 gallons per hour and only costs $58.00. In producing a system at this low price we have not sacrificed quality for cheapness.

We manufacture other sizes and styles of suction plants, deep well working heads, water softeners, septic tanks, drinking cups for stock, etc. Prices on water equipment, $58.00 and up. Write us about your requirements and for literature, without obligation.

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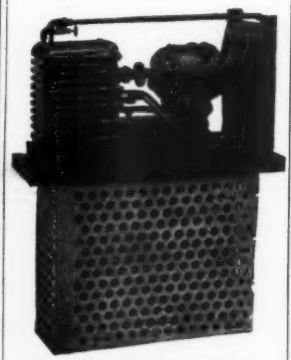
A BETTER WAY TO COOL MILK

The Haven Electric Farm Milk Cooling System was designed especially for farm service in cooperation with leading milk companies. Anyone can install. No expert knowledge required. Reduces bacteria count, increases milk quality, saves labor, space, expense. Low price. Backed by definite capacity and quality guarantee.



Complete machine, simple, sturdy, compact, lifts right out of tank.

Price $325.00, f. o. b. Milwaukee. Tank extra if required. Easy monthly terms can be arranged. Write for Bulletin "B."

(A few good dealer territories open)

Haven Manufacturing Co.
Milwaukee, Wisconsin

Modernizing the Dairy

(*Continued from page* 14)

and winter, and last but not least the all-important power bottler and capper.

It is assumed that a good supply of fresh water is available at all times. In the latitude of St. Paul, Minnesota, warm water as compared to water in outdoor tanks resulted in an average yearly increase in the milk flow of 15 per cent. Farther south the increase is less, being 5 per cent at the government experimental farms in Maryland.

To the retail dairyman the electric truck offers opportunities for economical delivery that are seldom appreciated. Delivery costs can be cut to a surprisingly low figure. Depreciation on such a truck is comparatively low, and in a typical case at 3 cents per kw. hr. for electricity the total cost per mile including interest, depreciation, and repairs, was between 3 and 4 cents.

A small electric truck, such as is used in many industrial plants, is used with several trailers to haul ensilage and other cow feed to the different feeding barns on the Walker-Gordon farms at Plainsboro, New Jersey. The road over which the material is hauled is paved with cement. These farms produce a large portion of New York City's certified milk.

A very interesting milking installation is being made on these same farms. It consists of a large slowly rotating table which will hold 50 cows. The "Release" system of milking will be used, and the men will not have to move from their places. After each cow is milked the machine will be automatically sterilized.

"So you asked Geraldine to marry you?" asked a man of the other.

"Yes, but I didn't have any luck," replied his friend. "She asked me if I had any prospects."

"Why didn't you tell her about your rich uncle?"

"I did, hang it all! Geraldine's my aunt now."

Don't Store Electric Fan During Winter

(*Continued from page 20*)

fans are drying wet clothing, vitalizing the air in a room when windows must be closed, airing clothes after ironing, drying clothes in the laundry during inclement weather, supplying a draft for new fires, drying clothes closets to prevent moisture and to discourage moths, drying fresh paint, drying the hair after washing, and dehydrating fruits and vegetables.

Everlasting Dough

(*Continued from page 23*)

Mix the potato, potato water and milk, sugar, salt, shortening and yeast. Add about two cups of flour. Let stand one hour. Mix stiff, and set in the refrigerator for twenty-four hours. Then you can cut off your biscuits when you like. They will rise in about an hour and a half. Put them in a 500° oven and you will have hot rolls in a jiffy.

If you do not use this dough every day, it, like the other, should be kneaded down.

I haven't tried my everlasting dough in the refrigerator, nor set the ice box rolls in a "cool place" during the winter, but I suspect they are interchangeable. Even if they were not, these two recipes would give us a short cut to hot rolls the year round.

Farmer: "Well, did you read the letter I sent you?"

Chore Boy: "Yes, sir, I read it inside and outside. On the inside it said 'You are fired,' and on the outside it said 'Return in five days,' so here I am."

* * *

Mr. Harsh: "I got a note from your teacher today, son!"

Jimmie H. "That's all right, dad. I won't say a thing about it!"

A Feed Mill for Small, Single Phase Motors—

Here is a practical, light-running, efficient feed mill especially designed for operation by 5 H.P. single phase motors. Lower cost per bushel than with any other type or method of grinding!

The Rowell Electric Hammer-Mill is entirely automatic in operation and it grinds with ***hammers*** instead of plates or burrs. Actually does a better job of grinding—***pounds*** the grain into feed, making it more digestible than by ordinary methods.

A quality machine throughout. Runs on New Departure Roller Bearings. Built to Rowell high quality standards. Meets every requirement of the small grinder as specified by the University of Wisconsin.

Write for illustrated descriptive literature and prices.

The I. B. Rowell Co.
1316 Lincoln Ave.
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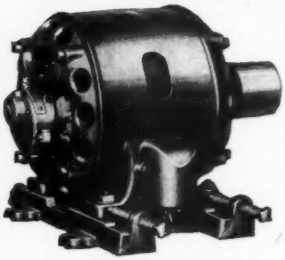
ROWELL
Hammer Mills



1 Horse Power Century Type RS Repulsion Start Induction Single Phase Motor

Helping the Farmer

For more than 24 years Century Type RS Single Phase Motors have helped the farmer do more work, more easily, more quickly and with less attention—operating pumps, refrigerators, grinders, cutters and similar apparatus.

CENTURY ELECTRIC CO.
1806 Pine St. St. Louis, Mo.
35 Stock Points in the United States and More Than 50 Outside Thereof

Century MOTORS

Test the Skim Milk

The modern cream separator, now so common on farms wherever butter and cream are sold, has saved an untold number of dollars for farmers and dairymen who use it. On the other hand, improperly adjusted and carelessly run separators are constantly leaving high priced butter fat in the skim milk, and altho greedy shoats and growing chickens have no objection to getting this cream in their rations, they refuse to pay dividends for its use.

It is not uncommon for testers in Dairy Herd Improvement Associations to find a poorly handled or wornout separator leaving as much as ½ of one per cent butterfat in the skim milk. If the herd is producing milk with an average test of 4 per cent, one-eighth of the butterfat, the part which buys the shoes and groceries, is practically wasted when such a separator is used.

Testing Pays

Testing the skim milk at regular intervals pays well, even where only a few cows are milked to supply dairy products for family use and to send enough butterfat to town to take care of the "trading." If the seperator is doing a poor job the fault may lie either with the machine or with the operator. Perhaps the floor underneath it is not level or solid; perhaps the cream screw is not set properly, or some part may be worn or damaged. Sometimes the separator is turned too fast or too slow, which may cause a variation in its efficiency. Such troubles as these can oftentimes be remedied, but if the separator has really outlived its usefulness and continues to lose butterfat despite adjustments, the best cure is a new machine. The butterfat saved will soon cover the original cost of an efficient separator.

An electric motor drive avoids the losses due to variations in speed of turning, for its fluctuation in speed is negligibly small.

Boatloads

A teacher was trying to develop the word "sleigh." "Now, Jamesie," she said, "what is it that comes along on runners?"

"Rum," answered the five-year-old New Yorker sapiently.

—*S. F. Club*

Here's the Winning Cover Title for September

> "The electric grinder is the cows best friend,
> Bringing regular meals and a perfect blend."
>
> G. Waterman, Brooklyn, Mich.

AND these deserve special commendation:

"Watts in the Pudding?" Ruth Berkey, Elton, Pa.; "Electric ground food, Keeps bossy in a good mood," J. M. Burgess, Tallahassee, Fla.; "Electricity will Pay, The Milky Way," J. Behrens, Peoria, Ill.; "Use juice for the mill, And the pail will fill," Mrs. N. Sundeen, Isanti, Minn.; "Electricity takes the 'L' out of slaving," Mrs. I. Wood, Sabot, Va.; "Food fresh from the grinder, Makes cows fit and finer," Mrs. E. Lumpkin, Waco, Texas; "The farm grind is just play, When electricity holds sway," Mrs. C. Crouch, Grants Pass, Ore., and the following from Mrs. C. Crouch, Grants Pass, Ore.:

"Electrical appliances in the dairyman's barn,
Works many wonders and never harm,
Brings peace and prosperity, this is no yarn,
Helps broadcast contentment upon the whole farm."

"The electric grinder is the cows best friend,
Bringing regular meals and a perfect blend."

With General Electric Motor

Faithful Thor Service

That means much on the farm

IN over a million homes — Thor washing machines have earned the title "*Faithful Thors.*" They hold world records for longest life and lowest upkeep.

In the farm home — where service may be miles away—this fact means much.

It means your wash-day plans will not be interrupted by breakdowns. It means your Thor Washer will do *all* the work of wash-day, year in and year out, as faithfully as Thors have done this for a million other women.

There is a "Faithful Thor" washing and ironing machine for every size family—one that will bring you a lifetime of service. For complete illustrated booklets on the entire Thor line of home laundry equipment write to

THE HURLEY MACHINE CO.
22nd St. and 54th Avenue
Dept. B Chicago, Ill.

The Gould Electric Food Mixer
with handy detachable motor.

Mixes, Whips, Beats, Slices, Grinds. Also has buffer, polisher and portable drill chuck attachments.

New Low Price $99.50

Club payment plan if desired

For Free Booklet—describing the many uses for this handy helper that works for ½ cent an hour, write:

Gould Electric Mixer Corp.
33 West 26th St., New York, N. Y.

Clip and Groom Your Cows

Clipped and Groomed Cows during stable months are clean and comfortable and keep the dirt out of the milk pail.
Clipping and Grooming will improve the health of your Live Stock.
Use a GILLETTE Portable Electric Clipping and Grooming Machine. Operates on the light circuit furnished by any Electric Light & Power Co., or on any make of Farm Lighting Plant.

Price List on Request

Gillette Clipping Machine Co., Inc.
129 West 31st Street Dept. 11.
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BARGAINS—Electric Motors & Repairs; We sell, buy, repair, rebuild, rent, exchange, any type, make, or size in the line of electric motors. Send us your inquiry. We handle both new or used motors, everyone guaranteed or money refunded. J. Y. Wallace Co., Inc., 33 Barrett St., Schenectady, N. Y.

GUARANTEE used motors give service the same as new motors at half price. Also new motors below cost. All sizes and types; standard makes. ¼ Hp. 110-V. AC, $6.50; DC, $6.50; ½ Hp. AC, $22.00; DC, $15.50. Write for prices on other sizes, stating kind of current and size desired. Also generators. Queen City Electric Co., 1742 Grand Ave., Chicago, Illinois.

What is Your Title for the Cover?

ELECTRICITY ON THE FARM offers a $25.00 cash prize for the best title for the picture shown on the cover of this issue (November). And as a special Christmas offer, a $15 second prize and two $5 third prizes.

RULES OF CONTEST

1. Contest closes December 5.

2. Contestant must be a farmer or a member of his family ***living on the farm.***

3. More than one title may be submitted.

4. In case of ties, each winning contestant will receive $25, $15 or $5, for ties of first, second and third prizes respectively.

5. Print plainly your name and address, and send your suggestion to Title Editor, ELECTRICITY ON THE FARM, 225 West 34th Street, New York, N. Y.

6. The winner for November will be announced in ELECTRICITY ON THE FARM for January (1929).

Readers submitting titles must include a brief statement of what electricity is doing for him (or her), and what it can do.

YOURS UPON REQUEST

The booklets, catalogs and descriptive leaflets listed below can be secured without cost by writing directly to the addresses given and mentioning that you saw them described in ELECTRICITY ON THE FARM.

Milking Machine practice is fully covered in bulletin No. 74, to be obtained from the Myers-Sherman Co., 213 No. Desplaine St., Chicago, Ill.

Portable Electric Clipping and Grooming Machines are fully described in a booklet published by and available from the Gillette Clipping Machine Co., Inc., 129 W. 31st St., N. Y. C.

"Complete Water Service, Hard-Soft-Hot-Cold-Water" gives a detailed explanation of the Milwaukee Air Power Water System which can be secured by writing to the Milwaukee Air Power Pump Co., Milwaukee, Wis.

Water where you want it and how to get it is explained in a folder published by The John Lauson Mfg. Co., New Holstein, Wis.

"The Range That 'Gets Meals' All By Itself" is the name of an interesting folder published by the Westinghouse Elec. & Mfg. Co., East Pittsburg, Pa.

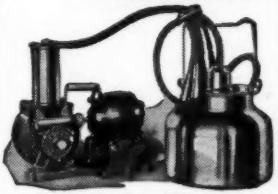
How to Install Pipe and Operate Power Pump is fully described in catalog HP-29 procurable from F. E. Myers & Bro. Co., Ashland, Ohio.

Grind Feed Into Profits This Way is an interesting folder on feed grinding which you can secure from the I. B. Rowell Co., Waukesha, Wis.

How to Save Half Your Time is the title of a leaflet describing the Thor Folding Ironer which can be secured from the Hurley Machine Co., 22nd St. & 54th Ave., Chicago, Ill.

Looking Into the Future is the name of the year book on electric incubating and brooding which will gladly be sent to you by the Wellington J. Smith Co., Cleveland, Ohio.

Fords Milker $100 Single Unit Complete



The Only Milker Advertising Full Price

You know what you pay when you decide on Fords Milker. Finest construction throughout. Guaranteed to equal any milker regardless of price. Sales doubling every year. Cows like it. Delivers clean, premium-priced milk. Easy to operate and clean. Many styles and sizes.

Send for FREE Booklet No. 74
Distributors Wanted. Fine Opportunity for merchants and farmers.
MYERS-SHERMAN COMPANY
213 N. Desplaines St., Chicago, Ill.

SMITH BROTHERS
Electric BROODER

For the sixth successive year the *marvel* of the brooding world. Owners claim it to be "the world's best brooder."

Raises 5% to 20% More Chicks

Exclusive patented features. Saves time. Saves labor. Ends fire risks. Clean, economical. Automatic heat control. Gives long, satisfactory service. Get yours NOW at local hatchery, hardware store, or from us.

Select your Brooder from this list

18 in.	75 chick size,	$9.50
24 in.	100 chick size,	12.00
32 in.	200 chick size,	16.00
42 in.	350 chick size,	20.00
56 in.	600 chick size,	24.00
72 in.	1000 chick size,	36.00

USE THIS COUPON:

WELLINGTON J. SMITH CO., 600-A Davis-Farley Bldg., Cleveland, Ohio.

☐ Enclosed is $.... for .... (quantity) ..... (size) Smith Brothers Electric Brooder.

☐ Send Free Folder.

Name .....

Address .....

Complete Pump Jack specifications can be secured from the Acme Machine Co., 2901 Fremont Ave., S. Minneapolis, Minn.

How to Keep Your Hens on the Job in the Winter is explained in an interesting folder on the subject of egg production available from J. E. Gilson Co., Port Washington, Wis.

Milk Cooling with simple, economical equipment is explained in Bulletin B. Write Haven Manufacturing Co., Milwaukee, Wis.

Electric Poultry Equipment, all types, are fully described in the catalog you can get by writing Oakes Manufacturing Co., Tipton, Ind.

Doing the Work of Several Maids is the title of an interesting folder describing the Gould Electric Mixer. You can have it by writing to the Gould Electric Mixer Corp., 33 West 26th St., New York City.

RUNNING WATER ON THE FARM

BURKS
SUPER-TURBINE
PUMPS
Only one moving part
"A Life-Time of SERVICE"

DURABLE and RELIABLE

The ideal pump for your AUTOMATIC WATER SYSTEM. There is only one moving part — it has no valves, leathers, gears, springs, belts, idlers, etc., to wear and cause trouble or require replacement.

There is no metal to metal contact — therefore no wear. Handles the most difficult conditions with perfect ease.

Complete information on request.

Decatur Pump Company
2756 Nelson Park Road, Decatur, Illinois

With Our Readers

We publish below extracts from a few of the many interesting letters we are receiving each month from our readers. We are always glad to hear from you and will as far as practical publish your comments.

"I can hardly estimate the labor electricity has saved me since we had it installed in our home, which is only a little over a year ago. We use it for cooking, lighting, water heating, ironing, etc. If a person offered me $1000 to have electricity taken from my home, I wouldn't accept it if I couldn't get it installed again."

MRS. W. L. LEDBETTER,
R. F. D. 2, Box 7A,
Ridgefield, Wash.

* * *

"We use electricity in many ways on our farm and shall extend it as far as our pocket-book will allow. There is nothing that makes a farm more enjoyable than 'juice.' Your magazine ELECTRICITY ON THE FARM is full of mighty profitable suggestions. Thank you for sending it to us."

ROBERT J. SERVICE,
Mountain Outlook Farm,
Stone Ridge, Ulster Co., N. Y.

* * *

"If I may express my opinion in regard to electrifying the farm, let me urge that the home be not forgotten. Electricity in the farm home takes more of the 'gimp' out of the 'move to town' idea, than anything else I know of."

MRS. S. M. HILLIARD,
Ada, Mich.

* * *

"I can never express to you the pleasure derived from the use of electricity. Although our farm is small, we enjoy the using of a great many things and the saving of so much time. Although I am nearly seventy-seven years old (young) through its uses I am enabled to do all my work, housecleaning included."

MRS. HARVEY S. DAY, R. R. No. 1,
Willis, Mich.

Keeping the Farm Motor in Good Condition

By E. F. ROGERS

(*Continued from October issue*)

Many alternating current motors, particularly of the single phase variety have commutators with carbon brushes. Neglect in keeping a motor commutator bright and clean is sometimes responsible for the failure of a motor to start and may also be the cause of "sparking" at the brushes.

Sparking at the brushes may be a symptom of any one of the following troubles, a good many of which will be avoided if a periodic inspection is made with a cleaning rag and sufficient time is taken to make any necessary adjustments.

(A) The brush studs may not be exactly parallel with the motor shaft. Straighten them.

(B) Oil or grease may have gotten on the commutator and caused dirt to collect. Clean it off.

(C) Vibration may cause the brushes to chatter. Tighten up the foundation bolts or provide a better foundation.

(D) The bearings may be so badly worn that the armature is no longer exactly centered between the pole pieces. Correct this by adjusting the bearings getting new bearing linings if necessary.

(E) Brushes may stick in the holders. This will be prevented if dirst is kept from wedging between the brush and the holder, and the brushes are of proper size.

(F) Insufficient spring tension on the brushes. Periodic inspection would remedy this.

(G) High mica between the commutator bars. There should be a distinct slot between the copper segments of the commutator. When, through long use, the copper wears back so that the mica insulation in the slots projects, it must be cut back. This is a machine shop job. In cleaning or smoothing the commutator use

The ATOMISTER
THE EVEN PRESSURE SPRAYING MACHINE
Model A.
$37.50
Compressing Unit attached to Spray Gun
Sprays paint, lacquer, disinfectants, insecticides, whitewash, etc.
For use around homes, barns, silos, poultry houses, autos, etc.
Plugs into any electric socket.
At your dealer's—or direct from us.
Model B.
$39.50
Compressing Unit separated from Spray Gun
THE ATOMISTER CORPORATION
93 HAMILTON STREET
RAHWAY, N. J.

The LAUSON
Electric PumpJack
will convert your ordinary pump into a water supply unit, controllable all weather by a button in the house, that will unfailingly deliver all the water you want—deep or shallow well. It works equally well.
Built Like a High Grade Auto Transmission
Machine cut hardened gears, fully enclosed, running in oil. Bronze bearings. No chains or sprockets. High grade motor.
Compare with all others. Write for special literature and prices.
THE JOHN LAUSON MFG. CO.
700 Michigan St., New Holstein, Wis.

No. 00 sandpaper. Never use emery cloth around a motor.

(H) Overload. This is caused by putting a heavier load on the motor than it was designed to carry, and can only be corrected by removing the excessive load. However, most motors will stand a certain amount of over-load without injury, some times up to double their rated load. The more severe the overload is, the shorter the time it should be allowed to exist. If the windings smoke or "smell," the load must be reduced.

Motor Windings

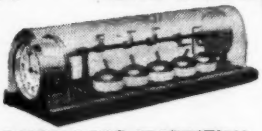
Motor windings must be kept free from gritty dirt such as sand. Grit or iron filings or any kind of abrasive dirt has a bad habit of puncturing motor insulation. Trouble of this kind is expensive and means that the motor must be sent back to the factory and be rewound. It is worth while to keep dirt of all kinds away from the motor windings. Sometimes dampness will cause a "ground," that is, the current passes through the motor frame instead of through the motor windings and the motor refuses to run. This trouble can be corrected by baking the motor in an oven for several hours so as to thoroughly dry it out.

If a motor must be used out of doors in wet weather for sawing wood, provide some sort of a cover over it so that the windings won't get soaked, although care must be taken not to restrict ventilation so much as to cause the motor to over-heat.

Not all motors have commutators. The squirrel cage induction motor has no commutator and without question is one of the sturdiest, simplest and most efficient electric motors made. But whether your electrical servant has a commutator or not, he likes to be kept clean, dry and lubricated, and if you do this for him, he will repay you with uninterrupted service.

Window cleaners aren't the only workers whose occupation is hazardous. We read recently of a magazine editor who dropped eleven stories into a wastebasket.

Improved Never-Fail TIME SWITCH



DOUBLES EGG PRODUCTION

Hens go to roost at dark, losing from 1 to 3 hours a day in fall and winter months. Reliable records show 75 to 150 per cent increase when electric lights are used. This practically doubles the profit from your flock.

Keeps Hens Working 12 Hours a Day

In many electric lighted hen houses, the failure to turn lights on and off at the right time, interferes with production. At about the cost of one egg per night during Fall and Winter months, the Never-Fail Switch turns lights on or off, dim or bright at the right time. Easy to install—pays for itself quickly. Used by successful poultrymen everywhere. Sold direct or through dealer. Write today for circular giving your dealer's name.

J. E. GILSON CO.
841 Western Avenue
Port Washington, Wis.

Be thankful for an Electric Pump Jack *that lasts!*

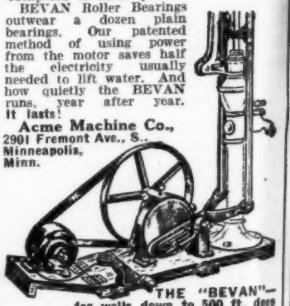
PLENTY of fresh, running water, always on tap—without the tiresome labor of pumping.

That's why BEVAN Electric Pumping Units are installed in so many rural homes soon as electricity takes over the pumping job.

Power Company engineers know that BEVAN design and high quality of construction will give their rural customers many years of cheap, dependable water service. Write for complete details—*free.*

BEVAN Roller Bearings outwear a dozen plain bearings. Our patented method of using power from the motor saves half the electricity usually needed to lift water. And how quietly the BEVAN runs, year after year. It lasts!

Acme Machine Co.,
2901 Fremont Ave., S.
Minneapolis, Minn.



THE "BEVAN"—for wells down to 500 ft. deep